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IN THE UNITED STATES AND TRADEMARK OFFICE  
BEFORE THE BOARD OF APPEALS

In re Application of:  
Bily WANG

Art unit: 2814

Serial No. 09/922,688

Examiner: FARAHANI, Dana

Filed: Aug. 7, 2001

For: LED FOCUSING CUP IN A STACKED SUBSTRATE

APPEAL BRIEF

(1) *State of Claims*

The original patent application was filed on Aug. 7, 2001. The application was rejected on March 4, 2002. An amendment was submitted on April 10, 2002, canceling claim 1, rewriting claims 2, 16, 17 as an independent claims, and adding claim 19. A Final Rejection was received on May 29, 2002, rejecting all claims 2-19.

(2) *State of Amendment*

The amendment submitted on April 10, 2002, was rejected on May 29, 2002, as a Final Rejection. Claims 2-4, 6, 9-11, 15, 16 and 18-19 were rejected under 35 USC 102 as being anticipated by Sasano (U.S. 6,313,525), citing that Sasano disclosed "a method for fabricating a focusing cup for an optoelectronic device package comprising the step of forming a through hole below layer 9 in an upper insulating substrate..." Claims 7, 14 and 17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Sasano and further in view of Komoto et al. (U.S. 6,340,824). Claims 8 and 12 were rejected under 35 U.S.C. 103(a) as being unpatentable over Sasano further in view of Kamizato et al. (U.S. 5,642,373).

(3) *Summary of the Invention*

An optoelectronic device is placed in a through hole of an upper substrate and mounted on lower substrate, which is stacked under the upper substrate. The through hole forms a focusing cup for the optoelectronic device. A metallic base plate can be inserted between the optoelectronic device and the lower substrate to enhance light reflection and heat removal. The through hole can be lined with metallic coating to enhance light reflection.

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(4) *Issues*

The Examiner rejected claims 2-4, 6, 9-11, 15, 16 and 18-19 under 35 U.S.C. 102(e) as being anticipated by Sasano, citing that Sasano disclosed “a method for fabricating a focusing cup for an optoelectronic device package comprising the steps of forming a through hole below 9 in an upper insulating substrate....”. Actually, Sasano disclosed a cup with a two-step wall in a single substrate, which was made through injection molding. (see column 1, lines 60-63; column 4, lines 28-30; and Figs. 3A-3I). Sasano’s upper substrate 9 has no through-hole, and serves only as a cover without any focusing function. In the present invention, the through hole is formed in the upper substrate, not below that upper substrate. In our embodiments shown in Figs. 7-8 and 10-13, additional metal layer is formed at the bottom of the lower layer to enhance reflection. The issue is whether the through hole is “below” the upper substrate or “in” the upper substrate.

(5) *Grouping of Claims*

Claims 2-13 are method claims. Claims 14-19 are apparatus claims.


(6) *Arguments*

The Examiner rejected the claims citing that Sasano disclosed “steps of forming a through hole below ..an upper insulating substrate.” The present invention discloses a through hole in the upper substrate. Therefore Sasano teaches away and is totally different from the present invention. This argument holds true for both groups of the claims

(7) *Conclusions*

The Examiner is wrong in rejecting claims 2-19 on the basis that the through hole is below the upper substrate. Therefore the rejection should be reversed.

(8) *Signature block*

  
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(9) *Appendix*

CLAIMS, as amended on April 10, 2002;

2. A method for fabricating a focusing cup for an optoelectronic device package comprising the steps of:

forming a through hole in an upper insulating substrate, wherein said through hole is of conical shape;

stacking said upper insulating substrate over a lower insulating substrate; and

mounting an optoelectronic device on said lower substrate inside said through hole.

3. The method as described in claim 2, wherein said through hole has larger top than a smaller bottom.

4. The method as described in claim 2, wherein said through hole has a smaller top and a larger bottom.

6. The method as described in claim 2, wherein said optoelectronic device has two top electrodes wire-bonded respectively to two bonding pads mounted on top of said upper substrate.

7. The method as described in claim 2, further comprising a step of inserting a metallic plate between said optoelectronic device and said lower substrate to enhance light reflection.

8. The method as described in claim 7, further comprising a step of lining the wall of said through hole with metal coating to enhance light reflection.

9. The method as described in claim 2, further comprising the step of lining the wall of said through hole with metal coating to enhance light reflection.

10. The method as described in claim 1, further comprising a step of inserting a metallic plate between said optoelectronic device and said lower substrate to enhance light reflection.

11. The method as described in claim 8, further comprising a step of lining the wall of said through hole with metal coating to enhance light reflection.

12. The method as described in claim 1, wherein said through hole is of cylindrical shape.

14. A package for optoelectronic device comprising:

an upper insulating substrate;

a lower insulating substrate;

a through hole in said upper insulating substrate;

an optoelectronic device mounted on said lower substrate inside said through hole; and

a metallic base plate inserted between said optoelectronic device and said lower substrate to enhance light reflection.

15. The package as described in claim 14, further comprising a metallic base plate inserted between said optoelectronic device and said lower substrate to enhance light reflection.

16. A package for optoelectronic device comprising:

an upper insulating substrate;

a lower insulating substrate;

a through hole in said upper insulating substrate;

an optoelectronic device mounted on said lower substrate and inside said through hole; and

metal lining coated over the wall of said through hole to enhance light reflection.

17. The package as described in claim 14, further comprising at least two metallic base plates inserted between said optoelectronic device and said lower substrate to enhance light reflection.

18. The package as described in claim 17, wherein said optoelectronic device has two bottom electrodes each coupled to one of said metallic base plate.

19. The package as described in claim 14, wherein said through is of conical shape.

(10) *Required Fee*

A fee of \$160 for filing the Appeal Brief is enclosed.

(11) *Real Party in Interest*

The real party in interest is:

Harvatek Corporation,

No.18, Lsn 522, Section 5, Chung Hua Road, Hsin-Chu 30050, Taiwan, R.O.C.

(12) *Related Appeals and Interferences*

There are no other related appeals and interferences.

**Certificate of Mailing**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Box Issue Fee address above on the date indicated below.

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